of the phenomena connected with new stars. It would seem, however, that such great velocities pointed rather to a violent collision of some sort than to an outburst within a dark and comparatively cool body; but whether a collision of a solid body with another, or the passage of a solid body through a gaseous nebula or a swarm of meteorites is uncertain."

It appears to me that the full significance of the recent observations has not been grasped by those who have commented upon them. It seems difficult to imagine that most of the new stars, like the bright-line stars and bright-line nebulæ, are *not* at the distance of the Milky Way as well as in its plane. If this be so, then this distance is enormous. Let us assume—the assumption is a moderate one—that it is represented by a parallax of half a second, and see how it works out on the two-minute squares marked in the diagrams.

At the Nova situated at such a distance, 1 minute of arc represents about 120 times the sun's distance from the earth.

The apparent movement of the condensations is stated to have been 1½ minutes in 48 days, say, approximately, 1 minute in a month, say, again, four times the distance of the sun in a day.

I do not say that such rapid translations of masses of matter are impossible, certainly there are no precedents for them; but my point is that there is absolutely no necessity for the assumption of such movements, and that the apparent change of position of these condensations can be explained otherwise than by movement. Indeed, such an explanation is not hard to seek when the meteoritic theory of new stars is closely considered in all its aspects. It is a well-known fact that the majority of new stars that have been recorded in more modern times, when the spectroscope has been available for their study, have ended by becoming nebulæ. The meteoritic theory explains the appearance of a new star by the interpenetration of two or more swarms of meteorites, a nebula being the representative of an ordinary great swarm, a comet near the sun being a representative of a small one disturbed by tidal action. The appearance of a new star is produced by the luminosity depending upon the celestial clashing. It is not difficult to conceive a system of several swarms of meteorites all performing their individual orbits, and so long as no two systems collide, the whole system will be invisible; but should a collision occur they will at once become visible, and the more violent the collision the brighter will be the light and the greater will be the luminosity of the "new star" which makes its appearance to chronicle the event.

Now suppose a nebula invaded, not by one, but by many swarms, under such conditions that the collision effects vary very greatly in intensity. In the present case the most violent one we began to know about some months ago; it constitutes Nova Persei. The least violent ones occurring in other parts of the disturbed nebula, almost immeasurably removed, *i.e.* more than 700 solar distances away, we only learn of from the recent photographs. The disturbances they chronicle are so feeble that to see the effect of them 7 hours' exposure with a 3-foot reflector are necessary, hence they soon die out; while they are dying other disturbances in other parts of the nebula arise. There is probably, therefore, no question of motion from place to place, we are dealing simply with different disturbances occurring in different places.

It is impossible to think that the great nebula which has now been photographed while the new star is still in being did not exist there a few months ago; and it is important, further, to remark that the nebulous matter already photographed in the region round the Nova is very probably only a portion of the actual amount of matter existing there, and that if the disturbances continue, more of the remaining portion may become visible. This, in fact, seems already to have been established, for Ritchey found later that the nebula "seems expanding in all directions." At the same time it may be stated that Campbell notes that the condensation D has remained unchanged, while there has been a further "movement" in the case of A and B, the "movement" of C being doubtful. There seems little doubt that later photographs will throw light on this question, but a matter to be regretted in this connection is that no photographs are available for the period during which the well-marked variability of the Nova was observed. These occasional outbursts of light were, we can now imagine, due to other disturbances of the nebula intermediate in intensity between that which caused the Nova itself and the other exceedingly faint ones now being photographed.

One important conclusion can, at any rate, be deduced from the Lick photographs, and that is that such explanations as explosions on solid globes, worlds on fire, volcanic eruptions, &c., must be considered less probable now that a great nebula is shown to be associated with many disturbances of very varying intensities. Formerly we had to wait for the death of a new star before the appearance indicating the existence of a nebula was manifested, and hence arose the idea that a star changed into a nebula, thus reversing the ordinary process of evolution.

NORMAN LOCKYER.

NOTES.

THE four Nobel prizes were distributed at Stockholm on Tuesday evening before a distinguished audience, among whom were the Crown Prince and other members of the Royal family o Sweden. Each prize was of the value of 200,000 francs. The prize for medicine was awarded to Dr. E. A. Behring, the prize for chemistry to Prof. J. H. van 't Hoff, the prize for physics to Prof. W. K. Röntgen, and the prize for literature to M. Sully Prudhomme.

IT is officially announced that the Board of Admiralty have received with much regret the resignation by Sir William H. White, K.C.B., F.R.S., in consequence of ill-health, of the appointment of Director of Naval Construction, which he has filled since 1885 with great distinction. They have appointed as his successor Mr. Philip Watts, F.R.S., who has held during the same time the post of director of the war shipbuilding department of Messrs. Sir William Armstrong, Whitworth and Co., Ltd., and naval architect to the company. Mr. Watts has done much original scientific and experimental work in connection with investigations of the stability of ships and floating bodies, the oscillations of ships in still water and amongst waves, and the propulsion and manœuvring powers of ships.

THE Berlin correspondent of the *Times* states that the estimates for the German Army include a vote for the new military technical college which the Government will open in the course of next year. The necessity for some such institution has been impressed upon the military authorities by the advancing scientific requirements of modern warfare, which are now too numerous and too varied to be provided for adequately by the resources at the command of the existing Staff College. There are branches of technical knowledge which, although they cannot strictly be classed as military, are nevertheless indispensable for the soldier. Among such subjects are steam-power, electricity, mechanics, the construction of boats and bridges, and the establishment of means of communication. In recognition of this fact the college which is shortly to be opened will have for its objects the extension of general technical knowledge in the Army and also the special technical training of engineer officers, as well as of those officers who desire to prepare themselves there for a career in the railway, ballooning and other special departments of the service. It is expected that the college will be opened on October 1, 1902. The ordinary annual expenses are estimated at 300,000 marks.

AMONG the lecture arrangements at the Royal Institution, before Easter next year, we notice the following:—Prof. J. A. Fleming, six lectures (adapted to young people) on waves and ripples in water, air and æther Dr. A. Macfadyen, six lectures on the cell, its means of offence and defence, immunity; Mr. W. N. Shaw, two lectures on the temperature of the atmosphere, its changes and their causes; Prof. E. B. Poulton, two lectures on recent researches on protective resemblances, warning colours and mimicry in insects; Dr. A. S. Murray, three lectures on recent excavations at Delphi and in the Greek Islands; six lectures on some electrical developments, by Lord Rayleigh. The Friday evening meetings will commence on January 19, when Lord Rayleigh will deliver a discourse on the interference of sound.

A CIRCULAR just issued announces that the Andrew Carnegie research scholarship or scholarships, of such value as may appear expedient to the Council of the Iron and Steel Institute from time to time, will be awarded annually, irrespective of sex or nationality, on the recommendation of the Council. Candidates, who must be under thirty-five years of age, must apply, on a special form, before the end of March to Mr. B. H. Brough, the secretary of the Institute. The object of this scheme of scholarships is not to facilitate ordinary collegiate studies, but to enable students who have passed through a college curriculum or have been trained in industrial establishments to conduct researches in the metallurgy of iron and steel and allied subjects, with the view of aiding its advance or its application to industry. There is no restriction as to the place of research which may be selected, whether university, technical school or works, provided it be properly equipped for the prosecution of metallurgical investigations. The appointment to a scholarship will be for one year, but the Council may at their discretion renew the scholarship for a further period instead of proceeding to a new election. The results of the research will be communicated to the Iron and Steel Institute in the form of a paper to be submitted to the annual general meeting of members, and if the Council consider the paper to be of sufficient merit, the Andrew Carnegie gold medal will be awarded to its author.

THE death is announced of the Rev. Hugh Alexander Macpherson, of Glendale, at the early age of forty-three. Mr. Macpherson was an authority on the fauna of the lake country, and had published an elaborate work on the subject, "A Vertebrate Fauna of Lakeland, including Cumberland and Westmorland, with Lancashire North of the Sands." He was also the author of a book entitled "British Birds."

THE "Association Internationale des Botanistes," founded in August at Geneva, having purchased the *Botanisches Centralblatt*, will continue it as the organ of the Association. It will be published by Messrs. Brill, of Leyden, and the first number will be issued on January 1, 1902. The journal will appear weekly and will contain abstracts of all important publications on botanical subjects. The cooperation of a large staff of highly competent special editors in various countries has been secured, and the abstracts will be published in English, French or German. The annual subscription of members of the Association is 25*s.*, and they will receive the journal post free. Applications for membership may be made to Dr. J. P. Lotsy, Oude Rijn, 33A, Leyden, Holland, who acts as the editor-in-chief. A feature of the journal will also be a very full list of the current publications in the science. In order to assist the editor, authors of botanical publications are invited to send copies of their works to him, or to the special editor in their own branch, in their country. The special editors for Great Britain are as follows:—Algæ, Miss Barton, British Museum (Nat. Hist.); Fungi, Mr. Massee, Royal Gardens, Kew; Archegoniatæ, Mr. A. Gepp, British Museum (Nat. Hist.); Phanerogams, Mr. Daydon Jackson, 21, Cautley Avenue, Clapham Common, S.W.; Cytology, Prof. Farmer, Roy. Coll. of Science, S. Kensington; Physiology, Prof. Vines, Headington Hill, Oxford; Morphology, Dr. W. H. Lang, University, Glasgow; Palæontology, Prof. Scott, Old Palace, Richmond, Surrey.

A NEW form of stereoscopic fluoroscope, worked out by Mr. E. W. Caldwell, is described by him in the New York *Electrical Review* for November 16. The method employed is the same as that first brought forward by Dr. McKenzie Davidson, but some modifications are introduced which, it is said, make it more easy to operate. Instead of using two different tubes as the sources of Röntgen rays, a single tube is used into which two antikathodes are sealed. The tube is excited by an alternating current by connecting it to the secondary coil of a transformer the primary of which is connected to the street mains through a Caldwell liquid interrupter; when a direct-current supply only is available, a small rotary converter is used to give an alternating current. The antikathodes are thus alternately sources of Röntgen rays, and the shadows these cast on the fluoroscope screen are viewed through a rotating shutter which only allows the right eye to see the shadow from one antikathode and the left eye that from the other. The shutter is rotated by a synchronous motor supplied from the same source of current as the X-ray tube. The speed of rotation is such that 7200 shadows are cast per minute, 3600 of which are visible to the right eye of the observer and the alternate 3600 to his left eye; the result is that the radiograph is seen as a continuous image showing the shape and space relations of the object examined. The fluoroscope screen and rotating shutter, with its motor, are mounted together in a portable form in order that in surgical cases they may be conveniently adjusted to suit the case of the patient.

THE Royal Meteorological Society has published in its *Quarterly Journal* an account of the bequest made to it by Mr. G. J. Symons of such of his books, pamphlets, maps and photographs, copies of which were not already possessed by the Society, and exclusive of works specially relating to rainfall. As a result, some 6200 books and pamphlets and 900 photographs have passed into the library of the Society, including some valuable works on rainfall to which Mr. H. Sowerby Wallis generously yielded his prior claim. In addition, Mr. Symons bequeathed to the Society various medals, &c., and a sum of 200*l.*, which has been utilised in providing accommodation for this valuable legacy. Mr. Symons's library was almost entirely meteorological; many of the volumes were exceedingly scarce and of very early date, and he endeavoured to procure a copy of each edition published. Nine of the works belong to the fifteenth century, 128 to the sixteenth and 214 to the seventeenth centuries. One of the earliest daily records of weather kept in London (1668–1689) is contained in a work entitled "Nauticum Astrologicum: or the Astrological Seaman," by John Gadbury (London, 1710). Another early record in London is "A Meteorological Journal kept in Paternoster Row" (1786–1792), by W. Bent. Mr. Symons's note is, "Excessively scarce. I never saw or heard of another copy." A later publication, carrying the observations down to 1800, and containing a summary of the previous observations, is not so scarce. Although not included in the bequest, the Society wisely obtained by purchase a bibliography compiled by Mr. Symons containing about 60,000 titles of meteorological and kindred subjects.

AN International Exhibition of Automobiles was opened at Paris on Tuesday. Among the exhibits of scientific interest are steerable balloons and motors to drive them. The cigar-shaped balloon "Ville de Paris," which M. Deutsch proposes to try next spring, is shown, and also a steerable military balloon invented by Major Renard.

PROF. G. VICENTINI has communicated to the *Atti* of the Venetian Institution a paper on the supposed efficacy of canon-firing in preventing hailstorms. In this paper the author briefly reviews the work of the second International Congress held at Padua, and his general conclusion is that the matter requires to be studied in a more scientific and statistical manner than has been hitherto done. For this purpose it may be desirable on account of expense to restrict the investigation to a limited region, but in the absence of more exact investigations it is thought that the experiments hitherto carried out can be hardly regarded as conclusive.

WE received a few days ago the Report, dated March 1901, of the International Association for Promoting the Study of Quaternions and Allied Systems of Mathematics. From the address of the president, Prof. C. J. Joly, of Dublin, we learn that the Association was founded about the year 1900, at the instigation of Mr. S. Kimura, of Japan, and Dr. P. Molenbroek, of the Hague, and Sir Robert Ball was its first president. The society proposes to publish a bibliography of the subject, and a report on the position of quaternions and allied branches of mathematics in the curricula of universities and colleges throughout the world is also projected.

WE have received from the author, Mr. G. W. Cole, a copy of a pamphlet entitled "Bermuda and the *Challenger* Expedition," being a bibliography of the results obtained by that expedition at and near Bermuda. Owing to the establishment of a biological station, each year witnesses the arrival in the islands of an increasing number of zoologists, and it is for their use that this useful pamphlet has been chiefly compiled.

THE observations of Herr E. Wasmann on the relations subsisting between the staphilinid beetles dwelling parasitically (or commensurally) in the nests of ants and termites are already classic. The subject is further elaborated in a paper (the first of a series) which appears in the *Biol. Centralblatt* for November, in which the author suggests that in some of these parasites we have instances of the actual evolution of species going on before our eyes.

OUR contemporary *Die Umschau*, of December 7, contains an interesting summary, by Dr. F. Knauer, of recent investigations —especially those of E. Wasmann—connected with the life-history of ants and termites, particular attention being directed to those insects living in commensalism in their nests, and the plants they cultivate. Attention is first directed to the so-called "crippled" or "pseudogynous" ants of certain species, which have the head and abdomen of a worker and the body of a female. Following this, the author refers to the curious circumstance that not only do the beetles living in commensalism with ants show an extraordinary enlargement of the abdomen, but that the same feature characterises the recently-discovered flies of the genus Termitoxenia. The paper concludes with a notice of the funguses and other plants cultivated by ants.

THE new editions of Darwin's "Descent of Man" and "Origin of Species" which have recently been published by Mr. John Murray are the most remarkable specimens of cheap and authoritative scientific literature which have come under our notice. Either of the books named can now be obtained in the form of a well-printed and neatly-bound volume for half-a-crown, and a popular edition of the "Origin of Species" has been published at the price of one shilling. No one interested in the great problems of natural history need, therefore, be without the two works which determined the direction of inquiry in the last century and still exert a profound influence upon biological thought. It is worth while to remind naturalists that though the copyright of the "Origin of Species" has now expired, only the imperfect edition can be reprinted without the authority of the author's executors. The only complete and authorised edition is that published by Mr. Murray.

THE Report for the year 1900 of the Botanic Garden and Domains, Sydney, New South Wales, by the director, Mr. J. H. Maiden, shows steady work in the improvement of the Gardens and the increased efficiency of the herbarium and library. The details are chiefly of local interest.

WE have received from the U.S. Department of Agriculture (Division of Botany) two interesting pamphlets (*Bulletins* Nos. 27 and 28): Seeds of Commercial Salt-bushes—*i.e.* species of Atriplex—grown as forage-plants in the arid regions of the West, by Mr. G. N. Collins; and The Chayote, a Tropical Vegetable, by Mr. O. F. Cook. The chayote or tayote, *Sechium edule*, a member of the Cucurbitaceæ, is better adapted for a tropical climate than most herbaceous plants. It has been grown from time immemorial by the aborigines of South America for its succulent fruit, but, like so many cultivated plants, is unknown in the wild state.

THE *Journal* of the College of Science of the Imperial University of Tokyo (vol. xv. part iii.) contains several interesting botanical articles, mostly in German; among the rest: On the organisms concerned in the fermentation of the Japanese spirit "awamori," by Mr. T. Inui, which is attributed mainly to a new species, *Aspergillus luchuensis*, accompanied also by *Aspergillus perniciosus*, sp.n., *Saccharomyces Awamori*, sp.n., and *S. anomalus*; on the transpiration of evergreen trees in winter, by Mr. S. Kusano; both transpiration and assimilation are continued through the winter in the climate of Tokyo; on the action of cupric sulphate on plants, by Mr. N. Hattori; and on the more important fibre-plants of Japan, by Mr. K. Saito.

THE first instalment of the second edition of Prof. van 't Hoff's "Vorlesungen über theoretische und physikalische Chemie," dealing with chemical dynamics, has been published by Messrs. F. Vieweg und Sohn, Brunswick. This is the part of the work which has been translated into French and English and already noticed in the review columns (vol. lix. pp. 458, 557, 1898).

THE Polygraphisches Institut of Zürich has just issued the first and second parts of a series of plates and descriptive text entitled "Arboretum Amazonicum." The author of this iconography is Dr. J. Huber, head of the botanical section of the Museum of Natural History and Ethnography at Para, and the work will be completed in ten parts. When the whole of the parts have been received a review of their contents will appear in these columns.

A SHORT address on the progress of physics during the nineteenth century, recently delivered before the St. Louis Academy of Sciences by Prof. F. E. Nipher, has been issued in the *Transactions* of the Society (vol. xi. No. 6). He remarks, in concluding his survey, "If the history of the last century has taught us anything, it has established the practical or commercial value of research in pure science. It is from such work that all of the great achievements have directly come. And whenever any people forgets the source from which these great things have come, and allows engineering to supplant science, that people is on the way to the civilisation of China."

MESSRS. MARION AND CO. have just commenced the publication of reproductions of a fine series of photographs of "The Empire: its Cities, Palaces and Buildings." The views can be obtained in half-tone process prints or reproduced by collotype process. In the collection of pictures of "Famous Buildings of London," which forms one number of the series, we notice views of the Imperial Institute and the British Museum. The Natural History Museum deserves to be included, but there are few other fine buildings devoted to scientific research and education in London. Fine buildings do not necessarily make fine work, but they facilitate it and show in what regard the nation holds those who contribute to its scientific and industrial progress.

ABSTRACTS of the papers read before the Royal Society of New South Wales appear regularly among our reports of societies and academics. The volume of *Proceedings* containing the complete papers read before the Society in 1900 has now been received, and calls for a note of admiration. Among the subjects dealt with are the sun's motion in space, and the volumes of solids as related to transverse sections, by Mr. G. H. Knibbs; several papers on eucalyptus oils, by Mr. H. G. Smith; customs of Australian aborigines, by Mr. R. H. Mathews, Mr. W. J. Enright and Miss M. M. Everitt; the crystalline structure of some gold, silver and copper nuggets, by Prof. A. Liversidge, F.R.S.; and an experimental investigation of the strength of brickwork when subjected to compressive and transverse stresses, by Prof. W. H. Warren and Mr. S. H. Barraclough.

THE additions to the Zoological Society's Gardens during the past week include a South Albemarle Tortoise (*Testudo vicina*) from the Galapagos Islands, a Conical Eryx (*Eryx conicus*) from India, deposited; a Shag (*Phalacrocorax graculus*), European, purchased; an Axis Deer (*Cervus axis*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

NEW VARIABLE STARS.—The following newly-detected variables are announced in the *Astronomische Nachrichten* (Bd. 157, No. 3751):—

94, 1901, *Cygni*.—

A.G. Bonn (B.D. +41°·4114)

$$\left.\begin{array}{l}\text{R.A.} = 21\text{h. } 17\text{m. } 42\text{s.}\\ \text{Decl.} = +41^\circ\ 51'\cdot 8\end{array}\right\}(1875\cdot 0)$$

Herr Fr. Deichmuller states that there is a variation of about half a magnitude; the times are not sufficiently continuous to deduce a value of the period.

95, 1901, *Pegasi*.—Dr. T. D. Anderson announces variability in the star B.D. +24°·4462, whose position is

$$\left.\begin{array}{l}\text{R.A.} = 21\text{h. } 37\text{m. } 56\text{s.}\cdot 0\\ \text{Decl.} = +24^\circ\ 20'\cdot 6\end{array}\right\}(1855\cdot 0)$$

The star is sometimes about 10 magnitude, but at intervals becomes much fainter.

96, 1901, *Cygni*.—Mr. Stanley Williams finds from photographs taken with a 4·4-inch portrait lens that variability exists in the star B.D. +29°·4231.

$$\left.\begin{array}{l}\text{R.A.} = 20\text{h. } 49\text{m. } 2\text{s.}\cdot 1\\ \text{Decl.} = +29^\circ\ 51'\cdot 8\end{array}\right\}(1855\cdot 0).$$

The following variations are recorded:—

1901 Sept. 21 ...	10·81 mag.	1901 Nov. 1 ...	9·88 mag.
Oct. 7 ...	10·26 ,,	,, 3 ...	10·47 ,,
,, 14 ...	9·79 ,,		

These indicate a maximum of 9·7 magnitude on 1901 October 21. The star was invisible on plates taken on 1899 October 6 and 9, 1900 October 26, 27 and November 15, so that it must have been fainter than 12 magnitude. The period is at present uncertain.

BRIGHT METEOR OF DECEMBER 4.—A brilliant meteor was seen by several observers shortly after five o'clock in the evening of Wednesday in last week, December 4. Prof. J. P. O'Reilly, writing from Dublin, says:—"At 5h. 11m. p.m. this evening I saw in the south-eastern sky a brilliant meteor, which appeared at a point about 30° above the horizon and had a course about equal in length to the belt of Orion. The fore part was brilliant bluish-white, the after part red sparks. The direction of movement made with the horizon an angle of about 60° to 65°, the inclination of the line of movement being to the south. There were no stars visible by which I could more distinctly fix its position."

Mr. C. Waterer (Highfield, Northdown Avenue, Margate) and two friends saw the meteor while walking towards Kingsgate, near Margate. He remarks, "The trail remained visible to us all for some seconds. We were then looking west, and its direction was approximately from north to south. The time by my watch was 5.35 p.m."

"COMPANION TO THE OBSERVATORY," 1902.—This almost indispensable handbook for the practical observer has recently been issued for the coming year. The contents and arrangement are similar to those of previous issues. A small addition which will be useful to spectroscopists is the list of spectroscopic double stars, with their periods so far as is at present known.

THE VARIATIONS IN THE MAMMALIAN EYE.[1]

DR. LINDSAY JOHNSON'S work, in the investigation of the deep anatomy of the mammalian eye as displayed by the ophthalmoscope, has been of a very extensive and persevering, not to say of a very adventurous character; and the volume before us, containing his contribution on the subject to the *Transactions* of the Royal Society, represents no more than a fraction of the material which he has collected, and which he intends, we understand, one day to publish. Not the least interesting part of it will be that which will deal with his methods, with the perils occasionally attendant upon them, and with the contrivances by means of which a living lion and a living whale were compelled to submit themselves to ophthalmoscopic examination. Mirror in hand, Dr. Johnson has not only visited the zoological gardens of many countries, but also the native haunts of many wild creatures; and in the book before us some of his discoveries are displayed in twenty-six plates, containing fifty coloured drawings of eyegrounds, beautifully finished and exquisitively reproduced in chromo-lithography, and in three plates with drawings in black and white, showing variations in the forms of persistent hyaloid artery, rudimentary forms of pecten, and different types of the appendages which are found on the pupillary margins of many of the ungulata.

The general result of Dr. Johnson's observations is to show the existence among mammalia of very wide differences in two respects; first, as regards the vascular supply of the optic nerve and retina; secondly, as regards the presence, coloration and pigmentation of the tapetum.

With regard to the first of these, it may be said that the general type presented by the human eye, that is, the presence of a central artery and vein of the retina, finding entrance and exit among the fibres of the optic nerve, and constituting a practically closed and complete retinal circulation, is more or less preserved in monkeys, lemurs, the carnivora, some of the ungulata, some of the rodentia, and some marsupialia, but is either absent or concealed by tapetum in the Australian fruit-bat, the Indian rhinoceros, Burchell's zebra, the American tapir, the African elephant, the Canadian beaver, the chinchilla, the guinea-pig, the Central American agouti, the Brazilian porcupine, the hairy armadillo, the wombat, the squirrel-like phalanger and the echidna; while among these latter animals there are great differences in the blood-supply of the optic disc itself, which in some of them, as in the Indian rhinoceros and the hairy armadillo, is of a dead white like the whiteness of atrophy in the human subject; while in others, as the zebra, it is abundantly vascular, and is surrounded by a radiation of small

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[1] "Contributions to the Comparative Anatomy of the Mammalian Eye, chiefly based on Ophthalmoscopic Examination." By George Lindsay Johnson, M.D., F.R.C.S. From the *Philosophical Transactions* of the Royal Society of London for 1901. Pp. 82, with 26 plates in colour and 4 in black and white. Price 21*s*.